

*the RARS*

# Exciter

Raleigh Amateur Radio Society



*Worldwide Friendship*

December 1999

Number 350

FCC's  
*Riley Hollingsworth*  
*Coming to RARSfest*



*RARS Holiday Party  
at December Meeting*  
Food Drive Donations Accepted

*License Restructuring  
from FCC by  
End of Year?*

**WØUCE**  
*Elected  
President*



*Jack makes the sales at RARS Auction*



*The "Bayleaf" Tower  
Supports 220/440  
Repeaters*

## The Raleigh Amateur Radio Society

The Raleigh Amateur Radio Society, Inc. (RARS), was founded in 1969 and continues to serve and support the Amateur Radio community in the greater Triangle area. In 1999, RARS reincorporated and obtained 501(c)(3) Non-Profit tax status.

The objectives of the club are to promote worldwide friendship through Amateur Radio; to be of public service by providing radio communications in times of disaster, emergency, or civic need; to educate members in radio technique and to assist in obtaining Amateur Radio licenses.

Anyone interested in Amateur Radio is eligible to apply for membership. Dues for regular licensed amateurs are \$18.00 per year (from July 1 through June 30). Additional immediate family members pay \$5.00 each per year. Dues for licensed amateurs older than 59 or younger than 16 are \$12.00 per year. Dues for non-licensed Associate members are \$9.00 per year.

### Officers

#### President

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### Info

#### Repeater:

145.13  
146.64  
224.64  
444.525 (88.5 PL)  
444.95 (88.5 PL)

#### Web Site:

<http://www.rars.org>



## President's Corner

Gary KN4AQ

Time flies, whether you're having fun or not!

Here it is, the end of my two-year term as RARS President, and my last column under the "President's Corner" banner. At the December meeting I'll gratefully hand the gavel over to our new President, Jack Ritter WØUCE (and please note that I'm one of the few people able to find the Ø key on a computer keyboard!).

With each change of officers, the club changes a little, too. Jack and I are both longtime hams. Though he's got me beat by a few years, we're both entitled to official curmudgeon status. I've focused most of my ham career on VHF/UHF, with an occasional foray into the low bands. Jack is a dedicated HF/CW op, but he knows the value of our repeater "intercom" too. He even found a microphone to check into the 10 meter SSB net - now that's dedication!

It's been an... interesting... two years. We began with the repeaters going off the air for a good long while. That hurt the club, some say badly. Membership dropped, hamfest attendance dropped, club income dropped, public-service participation was harder to come by.. and we didn't win Field Day. But through it all, we remained the largest ham club in the state, with a core of dedicated members. We did what we came here to do - provide a public service, teach new hams, and enjoy ham radio more by being part of a club,

Now, hopefully, we've turned a corner. The repeaters are back on the air, we've achieved 501(c)(3) tax status, the MS-150 and State Fair operations went well with plenty of volunteers (OK, enough volunteers), and we're graduating a good size class of new hams. Maybe RARS can even buck the trend of decline in the overall ham community and grow again. Maybe we can win another Field Day!

Meanwhile, I'll be trading hats, and taking over the *Exciter* as Editor. I'll wait 'till next month to say more about that. For now I'll just say I'm looking forward to the challenge.

Thanks to everyone who played ham radio with me and RARS!

### Food Drive at Holiday Party



The December RARS meeting will be the Holiday Party - bring the family and have some fun. We'll be back down-stairs in the cafeteria at the Forest Hills Baptist Church.

Again this year, we ask everyone to bring along some cans or boxes of non-perishable food to be donated to the Food Bank. Tank KT4OC has arranged to make the donation. The need is great. **Suggestions:** canned veggies, cereal, peanut-butter, and the single-serving heat & eat stuff for areas where cooking and refrigeration is still limited. Thanks!

## Field Day Magic Number: 26

### THE FIELD DAY RESULTS ARE IN!

RARS operated two separate stations in the 1999 Field Day: a single-transmitter, all CW station in 1A, and our usual multi-station entry in 5A. Here's how we did:

In **category 1A**, our station using the **W4D** callsign came in **26th** in the class. Our score will look like this when it's printed in **QST**:

**Raleigh ARS**  
**W4D 998 2 6 4,292 NC**

Decoded, that means that W4D made 998 contacts, used the power multiplier 2 (150 watts or less), had 6 operators, and accumulated a total score, including bonus points and multipliers, of 4,292 points.

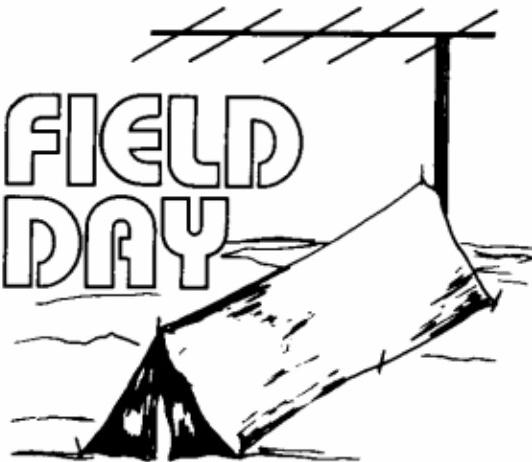
The top score in the 1A category was turned in by K6MI, the Chew's Ridge Gang out of Fresno, California. They made fewer contacts than we did, only 806, but their QRP operating power parlayed those contacts into 8,500 points.

Coincidentally, our other operation, **W4DW**, was also **26th** in its class, operating in the **5A category**. Again the **QST** line will read:

**Raleigh ARS**  
**W4DW 1904 2 28 5,092 NC**

Here we made 1904 contacts, with the power multiplier of 2 (under 150 watts), had 28 operators, and a total score plus bonus points and multipliers of 5,092.

Top score in the 5A category went to the Cherryville Repeater Assn. in northern New Jersey. There 6566 total contacts netted them 20,520 points.



Elsewhere around town, the Cary Amateur Radio Club came in seventh in the 3A category. OCRA beat us in 5A, coming in at 16, while DFMA was number 73 in 5A.

Some other **QST** statistics:

"A record number of 2,108 logs were received from clubs and individuals across the US and Canada showing that another record total of 31,266 people participated at sites across our continent and beyond. A total of 1,470,218 QSOs were completed, an increase of about 9% from 1998. Digital QSOs were down slightly, but CW QSOs broke the half-million mark (538,936) and phone QSOs totaled 926,872."

## *On The Cover*

The RARS 224.64 and 444.525 repeaters have found a new home, at the top of the Alltell Cellular tower pictured on the cover. The tower is about 50 feet from where our old tower stood, and about 125 feet lower. The site overlooks construction for the new North Wake Expressway.

Our antennas are the shiny silver objects sticking off the top to the left. The 440 antenna is on top, and the 220 antenna is below, in a unique mounting arrangement. They are each fed with separate runs of 7/8" hardline.

Performance so far has been pretty good. UHF coverage is nearly the same as we remember the old repeater, even though the antenna is a lot lower. The 220 repeater is giving us some trouble, so we haven't been able to evaluate its coverage yet.

**Also on the cover**, Jack Ritter WØUCE was elected RARS President to take us into 2000! Later that night, Jack played auctioneer for the RARS auction. Everybody had a great time.

## *FCC's Riley Hollingsworth To Speak at RARSfest 2K*

*Chuck K4HF*

The FCC's Special Council for Amateur Radio Enforcement (*yes, the acronym is SCARE - ed.*), Riley Hollingsworth K4ZDH, will speak at the Raleigh Amateur Radio Society's 28th Annual Hamfest, Computer Fair and ARRL NC State Convention, Sunday, April 9, 2000.

Mr. Hollingsworth has become well known in amateur radio circles for his firm but compassionate enforcement of the FCC Rules governing our hobby, and has been drawing standing-room-only crowds wherever he speaks.

He will present a Forum that we anticipate will be of great interest to all active radio amateurs. We are fortunate to have him as a guest of RARS and look forward to having him with us.

## **UHF Repeaters Return to Raleigh/Durham**

*Gary KN4AQ*

It not like there were **no** UHF repeaters on the air around Raleigh (I count **27** UHF machines in operation across the Triangle!), but after RARS' 444.525 machine went down, and Danny Musten KD4RAA's 444.875 lost its antenna, it seems pickings have been slim, and UHF activity has been fairly quiet.

Now, '525 is back, '875 is back, there's a new machine on in Durham on 444.925, and the Cary 444.775 has a brand new radio and controller. Even the long-dormant RARS 444.950 is on the air, albeit at low ebb and under test, from Rick N4VQT's home. Blow the dust off your dualbander!

For a reasonably complete list of area UHF repeaters, visit the RARS web site. Yes, after promising it for years, the famous **KN4AQ repeater list** now includes **UHF**:

[www.rars.org](http://www.rars.org) on your web dial.

## **SERA Tinkers With Two-Meter Band Plan**

The Southeastern Repeater Association (SERA) made what they call a "slight change" to their published Two-Meter band plan, according to the November issue of the **Repeater Journal**.

One change was to move propagation beacons from 144.05-144.06 to 144.275-144.300 (to match FCC rules). Another was to recognize **144.39** as the national **APRS** packet channel.

But perhaps the most significant change was to drop the 144.3-144.5 **OSCAR Sub-band** and reallocate it to **Multimode operation**. Several years ago, AMSAT quietly let it be known that they had no plans to develop satellites operating in that part of the band, and didn't need the spectrum.

**What this really means** is that activity in this section of the band is **unplanned**. Repeaters (including crossband repeat) are prohibited by FCC rules, but any simplex activity is OK. 144.45-47-49 will probably still be used for the Space Shuttle and the ISS.

Perhaps this area should be "channelized," following the 20 kHz step band plan? Four "channels" are already identified within its boundaries (the APRS and Shuttle frequencies).

"Weak Signal" SSB/CW operators would also appreciate not having high-power FM stations operating right next to the beacon band. Stay tuned!



*KE4ZNR at the Producer's Console*

## **Tarheel Scanner Group Visits Traffic Reporters**

*Kelly AE4FG*

The November meeting of the Scanner/SWL SIG was held on

the 15th. The meeting started at 6:00 at the the Raleigh Traffic Reporters broadcast facility on West Chase Boulevard in near the state fairgrounds. Marshall Sherard, KE4ZNR, gave a tour of the facility and discussed the activities of the traffic reporters. They can be heard on **450.5875 MHz** each week day during the morning and afternoon commuting hours.

The group then headed to the El Rodeo restaurant on Pleasant Valley Road in Raleigh for a meal and a short meeting. Tom McKee, K4ZAD, gave a presentation and demonstrated a home brew FM receiver that he made in 1966, and Kelly Mills presented information about the Icom R2 receiver/scanner.



*KE4JVY and K4ZAD compare 60's vintage FM receivers*

There were 10 people attending the meeting, and the meeting broke up about 9:30 PM.

**Meeting date change for December:** The December meeting will be held on the 13th (*second Tuesday*) instead of the 20th. This will be our annual magazine swap and junk box giveaway, so please bring any radio related magazines and electronic components that you would like to contribute to the group. We will meet at 6:30 for a meal at El Rodeo and the meeting will begin at 7:30.

For more information, e-mail Bob Zeher ([ke4jvy@juno.com](mailto:ke4jvy@juno.com)) or Kelly Mills ([ae4fg@hotmail.com](mailto:ae4fg@hotmail.com)), or call Bob at 844-9757.

# ATV Repeater Coming to Raleigh

The Triangle ATV Association has received permission to install an ATV repeater on the top of the Capitol Towers apartment building located in North Raleigh. This is a great location and it is expected to provide good coverage for the Raleigh area. Work on the new repeater will begin in the next few weeks and I expect the repeater to be operational in the next 3 to 6 months.

The new Raleigh ATV repeater will be linked "full time" to our existing Durham ATV repeater by a 2.4 GHz. FM ATV link. For those who may not be familiar with the term "GHz" (GigaHertz), that's 2,400 MHz. We will seek repeater coordination from SERA.

The new repeater will be different in many ways from the Durham repeater:

**1.** The Durham ATV repeater transmits and receives in the 70 cm band. The Raleigh repeater will transmit on 70 cm, but it will have receivers only in the 23 cm (1.25 GHz) and 13 cm (2.4 GHz) Amateur Radio microwave bands.

**2.** The Durham ATV repeater utilizes **VSB** (Vestigial Sideband) modulation, a form of AM, for both receive and transmit. The Raleigh ATV repeater will *transmit* VSB, but will *receive* **FM** video and audio. Broadcast TV stations use VSB modulation.

Vestigial Sideband means that the unwanted sideband has been reduced in amplitude, but the carrier and the desired sideband are unaltered. This is done to reduce interference to other stations.

Since the Durham ATV repeater transmits on 421.25 MHz., we use VSB instead of normal AM ATV to prevent unwanted out-of-band signals from being transmitted below the 70 cm band edge of 420 MHz.

FM video offers better quality video and audio, and it has a longer operating range than VSB. Satellite TV is broadcast by FM instead of VSB.

Initially, the Raleigh ATV repeater will receive on 1.2 GHz. FM and transmit on 421.25 MHz. This is referred to as a "Split-Band repeater". We also plan to add a second receiver input to the Raleigh ATV repeater on 2.4 GHz FM.

The receive input on 2.4 GHz. will permit the use of very inexpensive ATV systems by using the "in-home" type of audio/video transmitters and receivers like the **Wavecom Jr.'s** that are sold by Radio Shack and other companies. These systems and their "clones", are readily available in the \$100 to \$129 price range for both the transmitter and



*The Capital Towers roof - loaded with antennas*

**Woody KJ4SO**

receiver. I have occasionally seen them sell for less than \$100.

These are high quality FM transmitters and "superhet" microwave receivers. They are very easily modified for Amateur use. I will be building the 2.4 GHz ATV repeater link receiver and transmitter from a pair of Wavecom Jr. "clones".

The Raleigh ATV repeater will transit on 421.25 MHz., which is the same frequency as the Durham ATV repeater. However, the Durham ATV repeater's antenna is horizontally polarized, and the Raleigh ATV repeater will transmit and receive utilizing vertically polarized antennas. We

expect that the 26 dB isolation provided by the cross polarization between the repeaters will minimize any interference.

Vertical polarization for the Raleigh ATV repeater was chosen for two reasons:

It will share the same 70 cm frequency as the Durham ATV repeater, thereby eliminating the need for using a second

ATV frequency in the crowded 70 cm Amateur band in the Triangle area.

It will also make ATV available for Raleigh Hams who have "minimal" antenna systems. Many people will be able to receive good quality pictures using 440 MHz. base station vertical antennas mounted at roof level, or even inside attics. I am referring to "high gain" base antennas, not 1/4 wave ground planes. However, if you live within 5 to 10 miles of the ATV repeater, you can probably get by with a 6 dB gain mobile antenna. Most people will want to use one of the higher gain, "Diamond" or "Comet", or similar base station style of antennas.

**The Triangle Amateur Television Association** is a non-profit corporation that was formed in 1993 by a group of approximately 22 hams from Raleigh, Durham, and Chapel Hill, NC. Meetings are held on the fourth Thursday of each month, except November and December when there is a single, combined meeting held on the second Thursday of December.

The Triangle ATV Association's Website is at:

<http://www.qsl.net/tri-atv/>

E-mail [kj4so@ipass.net](mailto:kj4so@ipass.net) if you have any questions.

# Board Meeting Minutes October, 1999

Minutes of the RARS October Board Meeting - October 19, 1999

The monthly Board meeting of the Raleigh Amateur Radio Society was held at the Forest Hills Baptist Church on October 19. The meeting was called to order by KN4AQ at 7:41p. Members present at that time were: KN4AQ, K4HF, AB4OZ, KO4QH, KF4RDP, KF4RTX, N4YTO, and AC4ZO. The total attendance was 13. On motion by KF4RTX, seconded by KF4RDP, the minutes of the September meeting were approved.

In the treasurer's report, N4YTO announced that we have attained 501(c)(3) tax filing status, and that tax filing has been completed for the period ending June, 1999. Our membership stands at 252.

KF4RTX gave the VP report. He said that the November meeting will be the annual auction, and that he is in the process of planning the Christmas party for the December meeting.

## Committee Reports:

N4IXL gave the FM Committee report. He said that .64 continues to operate well, and that we are searching for a location for a receive site in RTP. Power is still not installed in our building at the Bayleaf site.

KO4QH reported on the Education Department. She said that a program is planned for November 16 at the Washington GT school.

Then, AC4ZO commented on the Fall RARS class.

KN4AQ reported on Public Service activities. In the last month, members have supported the MS-150, and the Thad Eure Walk For Hope, and that the State Fair is now fully staffed.

KF4RDP gave the Webmaster's activity report. He said that things are running fine, with the exception of the hits counter. Cliff commented that he would like to add some humor to the page.

KF4CXR reported on Membership Services. She said that the temporary meeting location has caused some commotion, but nothing serious.

KN4AQ gave the Hamfest report in the absence of KD4ACW. He said that a meeting is scheduled for Monday, October 25 at KF4RTX. Also, the Greensboro hamfest has been cancelled.

## Unfinished Business:

**Jeff Wittich AC4ZO**

KG4CXR reported on the propriety of issuing membership cards to our members. After hearing a favorable report, K4HF moved that we allocate the sum of \$75 for the production of membership cards under the supervision of KG4CXR. The motion was seconded by AC4ZO and was carried.

## New Business:

KN4AQ appointed a Financial Review Committee. Members include KF4RTX, K4HF, AB4OZ, and KC4UPX.

KT4OC brought to the table a request for support in conducting a holiday food drive. After a small amount of discussion, a motion was made by AC4ZO and seconded by KF4RTX that we condone the project and support Tank. The motion passed.

KN4AQ has received a request from SERA, that we relinquish several of the frequencies that we hold coordination for but are not using. There was a lot of discussion. Finally a motion was made by KF4RDP, seconded by KO4QH that we relinquish 53.25 to SERA. The motion passed. After even more discussion, a motion was made by AC4ZO, seconded by K4HF that we relinquish 444.95 to SERA. The motion passed. [Repeater Chair-elect N4IXL has renegotiated our use of those frequencies with the SERA frequency coordinator, and RARS is actively preparing repeaters. Ed.]

KN4AQ announced that RARS has finally attained 501(c)(3) tax status. Fred, N4IXL was recognized for doing the job (applause). N4YTO said a few words about what this means to the Club, and what some of our new responsibilities are. N4IXL was asked to send the current Bylaws to the Secretary as amended by the CPA.

## Comments:

KG4CXR announced that the RARS dinner is scheduled for Tuesday, October 26 at Ryan's in the Crossroads Shopping Center near Cary.

KF4RDP congratulated KF4RTX on his recent upgrade to General.

With the business complete, on motion by KF4RDP, seconded by AC4ZO, the meeting adjourned at 9:52p.

Respectfully submitted,

Jeff Wittich, AC4ZO - Secretary

# Club Meeting Minutes November, 1999

Minutes of the Regular November RARS Meeting - November 2, 1999

**Jeff Wittich AC4ZO**

The regular meeting of the Raleigh Amateur Radio Society was held on November 2, 1999 at the Forest Hills Baptist Church on Clark Avenue.

The meeting was called to order at a special start time of 7:33p by President Gary Pearce, KN4AQ.

David N4YTO gave the treasurers report. He said that RARS membership is 254.

Gary KN4AQ read the report from the Nominating Committee. The nominees were:

## Officers for 2 year terms:

President: Jack Ritter, WØUCE

Secretary: Jeff Wittich, AC4ZO

## Board Members for 1 year terms:

Public Service Chair: Matt Sickles, W2BYV

Education Director: Lynn Pitegoff, KO4QH

Field Day Chair: Bill Pond, N0WP

RARS Hamfest 2000 Chair: Cyndi Pearce, KD4ACW

Exciter Editor: Gary Pearce, KN4AQ

FM Repeater Chair: Fred Decker, N4IXL

RARS Membership Chair: Denyse Walter, KG4CXR

RARS Net Manager: Bill Cole, KG4CXV

RARS Web Master: Cliff Broughton, KF4RDP

At-Large Director: Wilbur Goss, WD4RDT

At-Large Director: Alan Pitegoff, AB4OZ

At-Large Director: John Jaskolka, N4YRD

ARRL Liaison: Chuck Littlewood, K4HF

W4DW, W4RNC Trustee: Jeff Wittich, AC4ZO

## Committee Chairman:

RARS Volunteer Exam Coordinator: Charlie Brown, W4VFJ

RARS Librarian: Wesley Miller, KG4CXT

The floor was opened for nominations. On motion by AC4ZO, seconded by KD4ZVW, nominations were closed. On motion by KA2FWC, second by KB4TKQ, the President instructed the Secretary to cast a unanimous ballot for the nominees as presented. It was noted by the Secretary that this motion was carried by vote but was not unanimous.

Bernard, KC4UPX reported on the FM Committee. He said that with the help of Wireless Communications Inc. and Dan, N3ND, the 444.525 repeater is on the air, and the 220 repeater is close behind.

Gary, KN4AQ announced that RARS has finally acquired 501(c)(3) tax status (non-profit). He recognized the people involved in the initiative, especially Fred, N4IXL and David, N4YTO.

Jeff, AC4ZO commented on the progress of the fall class, and announced Tune-in-the-world night, scheduled for November 8. He asked for volunteers for several functions.

Tank, KT4OC announced the holiday food drive. He asked members to bring item to donate to the December meeting. He also gave statistics about the agency that we will be benefiting (Food Bank of North Carolina).

At 7:39p, the meeting was turned over to Jack, WØUCE for the evening's program: The annual auction. Jack did his usual excellent job, and everyone had lots of fun and entertainment.

There were no door prizes awarded, and the meeting adjourned at 9:12p.

Jeff Wittich, AC4ZO, Secretary

## Snapshots

**The Old Reliable Run** got some help from hams. Below, Bob KF4MMM, Matt W2BYW, John K4JVP, Byron KF4NGJ and Gary KN4AQ (behind the camera) fed info on the lead runners in each race category to the Master of Ceremonies, who just happened to be Kelly Andrews KD4EWG (right) on Sunday, November 14th.



(above) **The Cary News** published a nice story on ham radio and emergency communications in the wake of Hurricanes Dennis and Floyd. KN4AQ (NC Public Information Coordinator), W2BYW (Wake County EC) and AB4W (NC Section Manager) are pictured.

(left) Dick KD4ISC has an audience as he calls the RARS 8:00 net from **Tune In The World Night** at the RARS class. On the final class night before the exams, RARS members set up working displays of a variety of specialties, and the students get some "hands on" experience with our equipment. See lots more pictures from the class on the RARS web site ([www.rars.org](http://www.rars.org)).

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## Restructuring By End of Year?

Knowledgeable sources in Washington say the amateur license restructuring issue has moved to the front burner at the FCC, and a Report and Order could be released before the end of 1999. While no one has mentioned a hard-and-fast date, several sources suggest that the R&O draft could be complete within a month or so.

**ARRL Letter**

**RARS Exciter**  
December 1999 **7**

Gary Pearce, Matt Sickler and Reed Whitten discuss the role of ham radio operators during the recent hurricanes.  
Star Photo by Mason Wren

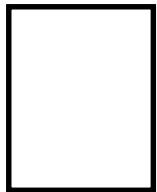
A fraction of the time it would normally take with the phone and power lines down," Sickler said. "We were able to keep the air affair with the satellites and a commitment to public service, the ham operators were invaluable out in the countryside when all other methods fail."

"During and after Floyd, ham radio operators gather as members in four major areas (the Triad, the East Coast, the Carolinas, and the Midwest). The Amateur Radio Relay League (ARRL) often becomes the primary mode of communications in the region.

"Ham operators provide links in emergencies in the Triad, the Carolinas, the Midwest, the Northeast, and the West Coast. The ARRL, the National Association, the Raleigh Amateur Radio Club, and the Student State Association have been training people to be prepared and trained and primed for helping in weather emergencies, ham radio

*the RARS*  
~~Exciter~~

Raleigh Amateur Radio Society, Inc.  
PO Box 17124  
Raleigh, North Carolina 27619



## New Hams Graduate from RARS Class!!



RARS VE's W4VFJ and N4HAF check 'em in, while KO4QH, AB4OZ and AC4ZO grade tests. Below are some of the brand new hams from the class!



Bharatwaj  
Ramakrishnan

Bob  
Brewer

Bob  
Conder

Chuck and  
Christine Hucks.

James and Jamie Boykin  
(passed their Novice written).



Jim  
Walter

Karl  
Ulrich

Larry  
Holt

Miller  
Baker

Jason  
Armbrust

Ron  
Bauman

Ron  
Ford

not pictured: John Blackard (sorry, John, the picture came out bad)



All The News That Doesn't Fit Into Print



Worldwide Friendship

## PDF Extra?

Gary KN4AQ

Most ham club newsletter editors are hurting for content. The RARS **Exciter** usually doesn't suffer from that problem. Several of us love to write and share our experience and knowledge. And we drag other club members into writing now and then, too. Add the ease of printing pictures from the new digital cameras, and we often have plenty of material.

The printed **Exciter** is restricted to 8 pages most of the time. That's the most that will go with one ounce of first-class postage. And although we usually have no trouble filling the 8-page **Exciter**, if we do want to make it bigger, we have to go all the way up to 12 pages (look at the way a printed **Exciter** is put together, and you'll see that the single sheet of paper yields four **Exciter** pages). That might get hard to fill up, and even if we could fill it up, it would be too expensive to print and mail.

The PDF version of the **Exciter**, however, is a freebee. The December issue of the **Exciter** was created using the program called Adobe PageMaker. The next step in creating the printed **Exciter** is to make a PDF file that goes off to the printer, using a program called Adobe Acrobat Distiller. I tweak just a little bit more with the formatting, and easily create a second PDF file that I place on the web or e-mail to club members. And with just a little more effort, I can add pages and stories to the PDF version at no extra cost.

In this **PDF Extra** are stories that didn't fit into the printed version, or came in past deadline that I didn't want to hold until next month. I may actually use some of the stories in the printed version next month, so you PDF readers just get early jump on them.

There's been some debate within the club about whether to print extra material in the on-line version of the **Exciter**. Some people think it's not fair to the print readers to get less. I sympathize with that point, but I also think it's unfair to those who have invested in computer equipment, modems and Internet service to not be able to benefit from that investment. I intend to use some editorial judgment and put stories into the PDF extra that are truly "extra." Stories that are important for the full membership will always appear in the printed **Exciter**

And I don't see doing away with the printed version of the **Exciter**, although we will probably survey the membership and separate those willing to receive *only* an electronic version. This will save money on print and postage. We'll look into that early next year, after I feel stable in publishing both print and PDF issues.

Finally, some will ask "Why PDF? Why not just publish in HTML on the web site?"

I have to create a PDF version for the printer, so there's minimal work in creating a second PDF version for electronic distribution. Creating HTML would be a lot of extra work. Another "advantage" is that you see the formatting the way I intended it. HTML formatting is much less precise. Also, you can save the PDF version of **Exciter** on your hard drive easily. Saving a collection of HTML files into cohesive document is still fairly messy. Finally, if you choose to, you can print this file and create your own relatively normal-looking **Exciter** on an inkjet printer.

I'm aware that there are some disadvantages to a PDF file. They're not all that easy to read and scroll around, at least until you get used to using the tools. The smaller and lower-resolution the monitor, the more difficult they are to see. But despite those drawbacks, I've come to really like reading newsletters created in PDF, and I hope you do, too. So, this is a test. Let me know what you think, and will see how goes.



**RARS Dinner:**  
**4th Tuesday at**  
**various locations**  
**Info: Nets and Web**

# Using the New FCC Universal Licenseing System

Bill Cole KG4CXY

The FCC's New Universal Licensing System - what's it all about?

The bottom line for the FCC is this: they process several hundred thousand license applications a year. These applications are presently handled by 11 different licensing systems ranging from Amateur radio operators to cell phone providers, and everything in between.

When you get down to it, all license applications to the FCC concern folks who want some form of transmitting privileges on some portion of the RF spectrum. (In the case of Amateur radio we're talking about a shared privilege, whereas a cell telephone provider is requesting an exclusive privilege.) So the FCC took a look at things and decided that they really didn't need 11 different administrative processes to perform the same operation.

Thus was the beginning of the **"Universal" Licensing System (ULS)**. The goal the FCC is trying to achieve is the simplification and reduction in cost of license issuance and management. To that end, the FCC has developed a dial-up, Web-browser based system (but not currently on the web) to allow individuals to either post new applications for licenses, or to modify existing license applications (i.e. Vanity call signs). One could say that this is the FCC's way to get on the E-commerce bandwagon.

## The Basics

At a minimum, the goal of the ULS is to provide a medium for the electronic filing of licensing applications. As a collateral benefit, they also provide basic search-engine functions on the license database. This gives the same capability that most callsign servers already provide.

ULS filing for the Amateur Service began on August 16th of this year. The ULS presently does not handle amateur radio club station applications, only personal licenses and call signs.

Given its browser-based implementation, it is relatively easy to use. The user just selects the service and purpose of their application, and it automatically configures its entry form to the type of information required for that service. You can put a password on the application they create to allow for return at a later date and update information as needed. The system also provides built-in security based on Secure Sockets (SSL) for the passing of sensitive personal information. Though not given much publicity, the ULS now accepts on-line fee payments via credit card for vanity call sign applications.

There are also some "marketing" features within the ULS



system that have little interest for most users, but most businesses will appreciate. The ability to search for licenses based on geographic mapping allows for all kinds of marketing statistics to be derived. My guess is that as the ULS system comes on-line all kinds of catalogs and junk mail from the Radio vendors will be filling our mailboxes. I guess that's OK, but I'm personally uncomfortable with the FCC helping to facilitate direct marketing campaigns for the business community. (As if I don't get enough solicitors calling in the evenings...)

## Why all the fuss?

The major issue being discussed in the Amateur community is the requirement for providing one's Social Security Number with the ULS application. The FCC has made it clear that this is a non-negotiable aspect of the new licensing system. There is a small vocal group within the Amateur community who sees this as an intrusive data requirement on the part of the FCC. The FCC counters this concern not allowing for SSN information on ULS applications to be accessible via the web - which I assume means you have to write in to change your SSN.

Most of the discussion on this topic seems over-blown. The bottom line is that the Federal Government already has my SSN in several databases, so why should I be concerned with the FCC having it? Truth be known, I'm less worried about the Government, and more concerned about data that TRW, Equifax, and other commercial information providers are gathering on me...

## Tips and Information Resources

It's worth mentioning here that some Amateurs may never see the ULS. VECs are allowed to collect the relevant information for the ULS using a variety of different forms. The VECs then enter the information into the ULS system as license elements are passed.

To personally file for a license application on-line, you must first register with the ULS. On-line registration for individuals is available on the ULS home page:

<http://www.fcc.gov/wtb/uls/>

Anyone who does not file an application without first registering will have his or her application dismissed.

Once you are registered and need to modify your information (such as a change of address), *you will need to establish a direct-connection to the FCC's servers*. Information on how to configure the connection can be found at:

<http://www.fcc.gov/wtb/uls/connecting.html>

Be aware that *the ULS requires the use of Windows 95/98, and a recent version of Netscape Navigator* for dial-up networking in order to connect to their servers. There does not appear to be any electronic options for those still using Windows 3.1, or for anyone using another web browser (Internet Explorer, Opera, etc.).

For those not wishing to use the new electronic filing

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system or who are unable to establish a modem connection to the FCC, you can still submit applications via mail. Note that all mail-ins to FCC must include the applicant's Social Security Number (if you're using an older form that doesn't contain a box for the number, print it in the margin at the top of the form).

Send mail-in Form 606 to:

**FCC, Information Technology Division,**  
**ATTN: Kathy McLucas,**  
**1270 Fairfield Rd,**  
**Gettysburg, PA 17325-7245**

The transition to the ULS has created a temporary backlog of new amateur applications with Volunteer Examiner Coordinators. Not all of the VECs have set up to file under the new system. Applicants for new amateur licenses might encounter delays of a few days longer than normal before the FCC issues their new call signs. Note that any application filed by a VEC automatically registers the applicant in the ULS.

Anyone wanting up-to-date information on the status of license applications filed using the ULS can do so via the ULS home page:

<http://www.fcc.gov/wtb/uls>

Complete registration and connection instructions can be found on the FCC's ULS home page:

<http://www.fcc.gov/wtb/uls>

For any problems or technical support on the ULS contact the FCC's ULS Technical support at 202-414-1250 or at [ulscomm@fcc.gov](mailto:ulscomm@fcc.gov).

## *My ULS Experience*

*Timothy Nicholson KF4RTX*

I moved into my new house in the latter part of June this year. Being a good ham, I immediately filed a form 610 to let the FCC know where to find me. At that time, the ULS was still being developed, and you were unable to do anything with it except register your call sign, which I had done a few weeks before.

I received my printed license in the mail a couple of weeks after mailing the 610. I was dismayed at the fact that the FCC had misspelled Raleigh as 'Releigh' and my street of Loganshire as 'Loganshine'.

By this time the ULS had been brought online for full use by hams. "Oh, well, just a minor keying error" I thought. "I'll just get online and fix it using the ULS."

I attempted to get on the ULS through the Internet. That is when I found out that the FCC requires you to dial directly into their servers if you want to do any maintenance to your license. I found the information about how to connect to the FCC and went about changing my address. That's

where I found my next hurdle.

The FCC developed the ULS site using a relatively new programming language called Java. I won't bore you with all the lingo and technical stuff regarding Java. Simply put, it is used to write programs that can run in a web browser. The two leading web browsers, Internet Explorer and Netscape, each recognize their own "flavor" of Java. When I signed into the ULS using my TIN (a.k.a. my Social Security Number), all I saw was a blank page. I contacted ULS support asking them why I was having this problem with the ULS in Internet Explorer. They informed me that the only browsers that the ULS supports are Netscape versions 4.7, 4.61, 4.51 or 4.5 (Versions 4.6 and those prior to 4.5 do not work). So I was forced into installing another browser on my system just for the ability to maintain my amateur radio license. I will not get on that soapbox here.

After I installed Netscape I was finally able to get into the ULS and change my address. Finally! I put the experience behind me and focused on passing the General class license test. I received the printed copy of my license with the spelling correction a week after I passed the General test. That very same day, I was told that my upgrade had been processed. I wanted to make sure my information was correct, so I got on the Internet and went to [QRZ.com](http://QRZ.com). To my surprise, I found that the spelling errors were back. This time, I had no problem going back into the ULS to correct it.

### *ULS: My opinion*

The FCC has done a tremendous job in developing the ULS. I can imagine it was a huge undertaking to develop, and I applaud the FCC for moving into the electronic age. But the ULS has its bugs, and there is room for improvement.

I would like to know that I do not have to correct my address every time I upgrade. I am not sure how this problem happened, but I reported my experience to the ULS support group and have not gotten a response. It seems to me that this was poor quality control in their testing department (assuming they tested it). This is a minor, but rather irritating, bug.

I also think the FCC should not require the use of any particular web browser. Many sites today are using standard Java, and these sites work in just about any Java-enabled web browser.

There is no doubt that having the ULS will make things easier for us when it comes time to modify our licenses. No more mailing 610's and waiting for the FCC to process them. As with any product, it takes time to work out the kinks and gain approval. Change is always a troublesome wave. Excuse me while I grab my surfboard.

# Good Morning Starshine

Jeff Wittich AC4ZO

"Man, you're crazy... that's a plane".

"No, really... it's a satellite in space orbiting the earth".

"Then why is it blinking? I can't believe you got me up at 5:30 in the morning to see this".

"Dude! It really is a satellite. It's the Starshine satellite, and it's gonna crash pretty soon".

This scenario has probably been played out all over the world by now. And the **Starshine** is responsible.

Starshine is a satellite that was deployed from the Space Shuttle on June 5, 1999, and it's been heading toward its demise ever since.

Starshine is a hollow sphere about 19 inches in diameter, and weighs about 85 pounds. The surface is covered with 878 little mirrors. The remarkable thing about the project is that these mirrors were actually made and polished by school students in 18 different countries around the world. Elementary, Middle, and High schools all participated.

The satellite was then deployed, and the project has been to track the orbital decay, caused by atmospheric drag. You see, the upper atmosphere extends out from the surface of the earth for about 300 miles. Anyone who has been through the RARS class knows that - it's the top of the F-2 layer!

But the shuttle often orbits far below that altitude, so there actually is some small amount of atmosphere where the orbit takes place. The STS-96 mission in June is an example. At an orbit of about 240 miles, it was perfect for the Starshine project.

Since it was deployed in June, the Starshine has fallen from 240 miles to about 210 miles (as of this writing) and is currently dropping at a rate of more than half a mile per day, and the rate is increasing rapidly. It will fall out of orbit in January.

When the satellite was set into orbit, it was given a slight spin. It rotates at about one revolution per minute. This causes the flashing we see here on Earth. You see, just after sunset, and just before sunrise, when the sun is just below the horizon, we are in the dark here on the surface of the Earth, but the sun is illuminating the sky above us.

As objects fly through that space, and are illuminated by the sun, we can see them with the naked eye. Starshine has a mirrored surface to enhance that visibility. As the satellite rotates, we see the sun in the mirrors as they pass by.

Students around the world are tracking the orbital decay daily, and reporting their observations to the sponsoring organization. And you can help! All the details are available from their web site at

<http://www.azinet.com/starshine>

If you don't have internet access, just ask me about it. You'll probably hear more than you want.

Here's how the altitude has decayed so far:

**240 miles on June 15**

**235 miles on July 27 (41 days later)**

**230 miles on Aug 28 (33 days later)**

**225 miles on Sept 26 (29 days later)**

**220 miles on Oct 18 (22 days later)**

**215 miles on Nov 6 (19 days later)**

**210 miles on Nov 18 (12 days later)**

## UHF Repeaters Return!

Gary Pearce KN4AQ

(This is the **whole** story, begun in the printed **Exciter** with a reference to the RARS web site.)

It not like there were **no** UHF repeaters on the air around Raleigh (there are **27** UHF machines in operation across the Triangle!), but after RARS' 444.525 machine went down, and Danny Musten KD4RAA's 444.875 lost its antenna, it seems pickings have been slim, and UHF activity has been fairly quiet.

Now, '525 is back, '875 is back, there's a new machine on in Durham on 444.925, and the Cary 444.775 has a brand new radio and controller. Even the long-dormant RARS 444.950 is on the air, albeit at low ebb and under test, from Rick N4VQT's home. Blow the dust off your dualbander!

Perhaps it's time for a review of what's available on UHF around town. All these repeaters are actually on the air. (There are several more in the directories that haven't been on in 10 years, and SERA NC Frequency Coordinator W4FAL is working to whittle them out of the book.) From the bottom of the band up, with some help from the SERA Repeater Journal, we see:

**442.025 Raleigh** PCRN Backbone. Please note that this is *not* a local repeater for ragchewing. It's a central hub in the PCRN network. Listen to it and you'll hear *all* the traffic from any repeater on the linking system, whether the Raleigh 146.88 machine is tied to the link or not. If you know what you're doing, you can use this machine to access the linking system without tying up the 88 repeater.

**442.05 Efland** On the Graham Repeater Association full-time link, this machine covers the western Triangle pretty well, but hits only the high spots in Raleigh. (**107.2**)

**442.15 Orange Co.** OCRA's mighty machine is *the* wide coverage UHF for the area, from the kilofoot level of the WUNC-TV tower west of Chapel Hill. Beware the short time-out timer. (**131.8**)

- 442.275 Auburn** A private repeater (there are a few of these on UHF).
- 442.40 Zebulon** This one's for the Triangle-East area.
- 442.45 Raleigh** A small, private machine with limited coverage.
- 442.55 Pittsboro** It's always there, but I've never heard anybody use it. **(131.8)**
- 442.675 Raleigh** The StARS machine, on the DH Hill Library (where the 145.13 repeater used to be).
- 443.20 Youngsville** KD2LH's machine had been off the air for awhile, too, but it's back.
- 443.225 Raleigh** Another local, private machine.
- 443.275 Rougemont** Pretty good coverage to mobiles in northwest Raleigh from WA4WTX's machine on Red Mountain. **(100)**
- 443.425 RTP** The GRA's RTP machine has good coverage from near I-40 and Davis Drive. Part of their full-time link. **(156.7)**
- 443.475 Chapel Hill** OCRA's "local" UHF machine has good coverage from the top of the UNC Hospital. I've heard this on the GRA link from time to time. **(131.8)**
- 443.625 RTP** On the Ericsson building in the south side of the park. Down in a hole? Nice machine, but very limited coverage.
- 443.725 Graham** The machine that gives the Graham Repeater Association its name. Covers the western Triangle area, and hilltops in Cary once in a while. **(156.7)**
- 444.00 Selma** One of the few UHF's covering the southeast Triangle. Reaches into Raleigh, but strictly hilltop in north Cary.
- 444.10 Durham** DFMA's local machine covers pretty well from the VA Hospital in Durham (right across the street from Duke U. Med. Open autopatch, and a VHF remote base.
- 444.225 Greensboro** The western end of the GRA linking system isn't heard direct in Raleigh much. I have all the GRA machines in memory, with the Greensboro machine 1st and the Raleigh machine last. When the system is in use, I'll click around to see how far west I can hear. **(146.2)**
- 444.525 Raleigh** RARS' UHF near Strickland and 6 Forks in north Raleigh. Open autopatch. **(88.5)**
- 444.650** Pretty wide coverage from 800 feet up the WRDU tower. Mobiles can hit it in Cary, and way the heck east. **(179.9)**
- 444.675 RTP** The Nortel machine suffers from low antenna/coverage. We need a race between Ericsson and Nortel to see who can improve coverage the farthest and fastest.
- 444.75 Pittsboro** Pittsboro has two UHF machines? Yep. Pretty good coverage, too. Very quiet.
- 444.775 Cary** K4JDR has just installed a brand new repeater, and it's working great. This is the real "Cary" repeater, by the way. That other one is really near Lake Wheeler (147.15). **(100)**
- 444.825 Raleigh** The eastern terminus of the GRA linked system, on the tower at Strickland and Old Lead Mine (everybody thinks that's where the RARS repeaters were). 145.19 is co-located there. **(146.2)**
- 444.875 Raleigh** KD4RAA's machine is just west of the Fairgrounds along Rt. 54. The repeater lost coverage when its dual-band antenna, shared with StARS 146.775 repeater, was replaced with a monobander. A new Diamond Dual-band has both machines working well. **(100)**
- 444.925 Durham** KB4WGA's new machine is near I-85 and US-501. You can hilltop it in Raleigh. **(156.7)**
- 444.95 Raleigh** RARS "other" UHF has been silent for several years. No more, it's under test at N4VQT's house in north Raleigh, awaiting a new home. **(88.5)**

